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**From:** Offenberg, John [Offenberg.John@epa.gov]  
**Sent:** 12/21/2018 10:39:22 PM  
**To:** Neal, Andy [andy.neal@ncdenr.gov]  
**CC:** Strynar, Mark [Strynar.Mark@epa.gov]; Lindstrom, Andrew [Lindstrom.Andrew@epa.gov]; Wilson, Nat [nat.wilson@ncdenr.gov]; Oggeri, Francis G [Francis.Oggeri@ncdenr.gov]  
**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

Andy,

Great. Let's plan on 9/10 January for sampling at Cedar Creek Fire Tower U40Y. Note that you may not hear further response for a while from any of us in EPA / ORD if the US Gov't goes into a partial shutdown this weekend. WE are an impacted Agency, and we cannot respond via email, or the like, while on furlough. So, let's continue to stick with the 9/10 January plan right up to the bitter end before the 9<sup>th</sup>.

John Offenberg

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**From:** Neal, Andy <andy.neal@ncdenr.gov>  
**Sent:** Friday, December 21, 2018 11:28 AM  
**To:** Offenberg, John <Offenberg.John@epa.gov>  
**Cc:** Strynar, Mark <strynar.mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Wilson, Nat <nat.wilson@ncdenr.gov>; Oggeri, Francis G <Francis.Oggeri@ncdenr.gov>  
**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

Andy,

I am looking at January 9-10 (Wed/Thu) for sampling at Cedar Creek Fire Tower U40Y. Let me know if these dates work for you.

Thank you.

-Andy Neal

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**From:** Offenberg, John [mailto:Offenberg.John@epa.gov]  
**Sent:** Wednesday, December 19, 2018 5:03 PM  
**To:** Neal, Andy <andy.neal@ncdenr.gov>  
**Cc:** Strynar, Mark <Strynar.Mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Wilson, Nat <nat.wilson@ncdenr.gov>  
**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

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Andy,

Either the week of 07 or 14 January 2019 would be great. I'm happy to play along and am interested in being present, though Andy Lindstrom is more important to have directly involved. I'll suggest that you simply work out a date with Andy L., and keep Mark Strynar and myself informed by cc-ing.

As for access to the fire tower itself, I still need to proceed cautiously and slowly, likely a few weeks or more into 2019 before I begin to make such an ask. I have quite a few issues that I need to work through prior to asking NCFS about the possibilities. Thank you for the contact information, I'll ask Craig Clarke when the idea is much more fully developed.

John Offenberg

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**From:** Neal, Andy <[andy.neal@ncdenr.gov](mailto:andy.neal@ncdenr.gov)>  
**Sent:** Friday, December 14, 2018 1:30 PM  
**To:** Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>  
**Cc:** Strynar, Mark <[strynar.mark@epa.gov](mailto:strynar.mark@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>; Wilson, Nat <[nat.wilson@ncdenr.gov](mailto:nat.wilson@ncdenr.gov)>  
**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

John,

We can plan a sampling trip in mid-January. Right now, my schedule is pretty open for the weeks of January 7 and 14, though I can make arrangements for other times if necessary. We should be able to sample all four wells there (if that's your interest) within a day or two.

Also, I spoke with a friend in the NC Forest Service about gaining access to the Cedar Creek Fire Tower for you. He said Craig Clarke (NCFS Safety Planning and Analysis Director) is the person to contact for this. Craig's contact information: 919-857-4820; [craig.clarke@ncagr.gov](mailto:craig.clarke@ncagr.gov).

Andy

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**From:** Offenberg, John [<mailto:Offenberg.John@epa.gov>]  
**Sent:** Friday, December 14, 2018 11:11 AM  
**To:** Neal, Andy <[andy.neal@ncdenr.gov](mailto:andy.neal@ncdenr.gov)>  
**Cc:** Strynar, Mark <[Strynar.Mark@epa.gov](mailto:Strynar.Mark@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>; Wilson, Nat <[nat.wilson@ncdenr.gov](mailto:nat.wilson@ncdenr.gov)>  
**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

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Andy,

Thank you for your reply. Attached are the two Standard Operating Procedures written by Mark Strynar and Any Lindstrom under which they collect and analyze for PFAS in drinking and well waters. They have typically performed both targeted (selective for a pre-selected list – e.g. PFOA, PFOS, HxOA, HxOS, Gen-X, ...), and non-targeted chemical analyses for PFAS compounds (and others) in water samples. Their non-targeted water analysis is a unique opportunity to learn more about previously unknown emissions, chemical transformations and degradation by-products. Indeed spending a half hour with either of them to discuss non-targeted chemical analysis, using high resolution mass spectrometry, is worthwhile to understanding the potential of the technique.

Being an Atmospheric Chemist, I'll admit I do not fully understand what is involved in getting a water sample from depth to the surface. I can see that there may be impacts (positive and negative biases) on chemical concentrations during such 'vertical transport through tubing(?)'. Upon arrival at the surface, Mark and Andy are well situated with sample handling and transportation to a) identify 'new unknowns,' if present, and b) quantify, where possible, the concentrations of at (some?) compounds, including PFAS compounds, in the water sample, 'as delivered to the bottle at

the surface.' I believe that even imperfect sampling can be quite instructive to learning more about what might be present in the sub-surface waters and potentially how those compounds may have arrived there.

I'll re-iterate my expressing interest in getting the ball rolling, as well as a willingness and desire to be onsite for sampling if possible (myself, Andy L, Mark S., or a subset thereof). That said, we're heading into a couple weeks of budgetary uncertainty, stacked on a few weeks of the year when many people take time off. I'll leave it to you to suggest a time to sample, at Cedar Creek Fire Tower that fits your schedule noting that mid-January, or thereafter, might make great sense.

If we do indeed move forward with this sampling, there will certainly be more people with whom I'll need to make contact, keeping others in NCDEQ, EPA Region 4 and several others here in EPA Office of R&D up to date about the work and results.

John

**John H Offenberg, Ph.D.**

Air Quality Branch  
Exposure Methods and Measurements Division  
National Exposure Research Laboratory  
Office of Research and Development  
U.S. Environmental Protection Agency  
Research Triangle Park, NC 27711

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**From:** Neal, Andy <[andy.neal@ncdenr.gov](mailto:andy.neal@ncdenr.gov)>

**Sent:** Friday, December 14, 2018 9:09 AM

**To:** Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>

**Cc:** Strynar, Mark <[strynar.mark@epa.gov](mailto:strynar.mark@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>; Wilson, Nat <[nat.wilson@ncdenr.gov](mailto:nat.wilson@ncdenr.gov)>

**Subject:** RE: [External] RE: sampling Cedar Creek Fire Tower U40Y

Good morning, John.

Our group in DWR samples monitoring wells in our state-wide monitoring network. Typically, the samples we collect are analyzed for the following parameters: alkalinity, total organic carbon, turbidity, major anions, total dissolved solids, silica, sulfide, nutrients, metals (total and dissolved), pesticides, semi-volatile organic compounds, and volatile organic compounds. Currently, we are not equipped to properly sample for PFAS or PFOS compounds. We have yet to sample the wells at Cedar Creek Fire Tower, but will be glad to do so if you are interested in knowing results of our normal parameter suite. We are happy to help in any way we can-- just let us know.

Thank you.

Andy

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**From:** Wilson, Nat

**Sent:** Thursday, December 13, 2018 4:53 PM

**To:** Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>

**Cc:** Neal, Andy <[andy.neal@ncdenr.gov](mailto:andy.neal@ncdenr.gov)>; Strynar, Mark <[Strynar.Mark@epa.gov](mailto:Strynar.Mark@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>

**Subject:** Re: [External] RE: sampling Cedar Creek Fire Tower U40Y

John,

Andy is out of the office now, but I predict he'll contact you tomorrow. My understanding of the sampling methodology is limited, but I think the tubing and pumps we use may give false positives for PFAS compounds in the ground water. We have another station nearer the Chemours plant (called Du Pont Station V42V) which was sampled by a Chemours consultant who we allowed access. Our sister agency, DWM, was aware of the sampling event and received the analyses. I believe they had to be very careful of clothing worn and chemical makeup of pumps and sampling gear to get good results.

We have been collecting samples for a number of years and doing field measurements for chloride which is discussed in our annual network report, see attached. Also described in the report are our current efforts to sample our entire network and the methods we use. But, Andy can describe them more thoroughly.

Good luck with getting your air sampling site up and running (you're definitely going to need a ladder). I'm sure Andy can accommodate your request for samples, but I don't know about the timing and whether the we meet protocols for GenX.

Nat

On Dec 13, 2018, at 4:16 PM, Offenber, John <[Offenber,John@epa.gov](mailto:Offenber,John@epa.gov)> wrote:

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Nat, and Andy,

Thank you for the response to my phone inquiry. Yesterday, I was exploring several locations that are of interest to me for developing an air sampling site in the vicinity of to Cape Fear River Lock and Dam #3 (CFRL&D#3). We're interested in testing an instrument for which we've been developing methods of online analysis of some PFAS compounds in the gas phase (atmosphere). I am in the process of working with US ACE to secure site access to CFRL&D#3 for continuous, online air sampling. The Cedar Creek site (34.932674, -78.738974) is also a very promising due to the potential for access above the canopy, prevailing wind direction, and proximity to the suspected emission location. While at the site yesterday, I noticed the four wells, which are listed online as being Water Level Monitoring Wells, though the online data also appears to show continuous chloride concentrations. Are these wells ever utilized for additional chemical analyses?

My thought is that the Cedar Creek site may be quite interesting for beginning to investigate atmosphere to surface to ground water(s) connections of PFAS compounds. Andy Lindstrom and Mark Strynar (both cc'd here) have been leading the EPA / ORD efforts for water analyses of PFAS compounds. I spoke a few minutes ago with Mark, and he has sufficient 1 Liter HDPE bottles and nitric acid for stabilization in his laboratory here in RTP. Indeed, he is chemically analyzing a set of samples for NC DEQ on Monday with a reporting of data on Wednesday. Regardless of the timing, I'd be happy to courier bottles, or even meet at the Cedar Creek site if that helps. As for getting the water into the bottles, that's not my area of expertise, but I'm happy to learn.

Please note that I have not yet contacted NCFS, and have several internal, preliminary steps to complete prior to making contact about potential site compatibility and potential access. Namely, the Cedar Creek Fire tower is not currently operational (tis missing the last 15 or so steps of the access ladder), and I need to work through the necessary steps on our side in order to gain approvals for pursuing such a site. I would appreciate a I bit of time in order to get my 'ducks in a row' before expanding our conversations about air sampling at that site or opening discussions with NC Forest Service.

John

**John H Offenberg, Ph.D.**

Air Quality Branch  
Exposure Methods and Measurements Division  
National Exposure Research Laboratory  
Office of Research and Development  
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**From:** Wilson, Nat <[nat.wilson@ncdenr.gov](mailto:nat.wilson@ncdenr.gov)>  
**Sent:** Thursday, December 13, 2018 3:41 PM  
**To:** Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>  
**Cc:** Neal, Andy <[andy.neal@ncdenr.gov](mailto:andy.neal@ncdenr.gov)>  
**Subject:** sampling Cedar Creek Fire Tower U40Y

John,

I received your voice mail today and definitely think it will be possible for you to get water samples from the wells at Cedar Creek Fire Tower station (U40Y). Andy Neal (919-707-9113) is in charge of our sampling group and will know his schedule to grab samples from those wells. So I leave it to you and Andy to work out the timing. You mentioned that you were developing chemical techniques associated with contamination from Chemours. We are not equipped to sample wells for PFAS compounds, specifically GenX. Will that be an issue?

Nat

Nathaniel (Nat) C. Wilson  
Environmental Program Supervisor  
Ground Water Management Branch Chief  
Water Planning Section  
Division of Water Resources  
Department of Environmental Quality

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In case of emergency or if you need immediate assistance please contact Tom Fransen at 919-707-9015.

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